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Sensitivity of Regional and State Nonfarm Wages and Salaries to National Business Cycles, 1948-79

An article in the April 1973 SURVEY OF CURRENT BUSINESS measured and explained differences among regions and among States in the change in quarterly nonfarm personal income during postwar national business cycles prior to 1970. Using data through the fourth quarter of 1979 on nonfarm wage and salary disbursements (payrolls), this article updates and extends the findings in the April 1973 article.[1]

The principal findings of this article are as follows:

- In the current national business cycle (1973–79), changes in durables manufacturing, nondurables manufacturing, and construction payrolls tended to increase substantially the sensitivity of total nonfarm payrolls, and changes in mining, government, and private service-type payrolls tended to reduce it. In the five preceding cycles (1948–73), in contrast, only changes in durables payrolls substantially increased the sensitivity of total nonfarm payrolls.

- In both the current and five preceding cycles, nonfarm payrolls were more

[1]. Nonfarm wages and salaries, which are the largest component of nonfarm personal income, are used because, on a quarterly basis, estimates of nonfarm wages and salaries for regions and States are more reliable than estimates of most other components of nonfarm personal income. Farm wages and salaries are excluded because fluctuations in them are mainly due to weather and other factors not related to business cycles. Nonfarm wages and salaries are used instead of nonagricultural employment because (1) wage and salary estimates for the whole postwar timespan are made by means of the same procedures for all regions and States and in somewhat more industrial detail than employment, and (2) the wage and salary estimates reflect changes in the number of hours worked, which are highly sensitive to business cycles.

cyclically sensitive in the North than in the South and West, mainly because of the relative size and cyclical sensitivity of manufacturing payrolls in the North. In the South and West, construction and related private service-type payrolls influenced the pattern of cyclical change more than in the North, partly due to slowdowns during recessions in the rate of population migration from the North and "building ahead" during expansions.

- In the current cycle, government payrolls were countercyclical in the South and West but not in the North. In the North, urban fiscal crises discouraged countercyclical State and local government expenditures, and military base closings adversely affected Federal payrolls in the 1974–75 recession. Mining payrolls were also countercyclical in the South and West; the Arab oil embargo of 1973–74 encouraged the exploration for and production of coal and petroleum and natural gas.

- In a number of States, the relative cyclical sensitivity of nonfarm payrolls was substantially different in the current cycle than in the five preceding cycles. States in which nonfarm payrolls were more cyclically sensitive in the current cycle included Tennessee, Mississippi, and Arkansas, in each of which increased industrialization was mainly due to rapid growth in cyclically sensitive types of manufacturing. The more sensitive States also included New Hampshire, Florida, Nevada, Arizona, and Colorado, in each of which the adverse effects on construction and

related private service-type payrolls of slowdowns during recessions in the numbers of migrants and tourists from other States became more pronounced. States in which nonfarm payrolls were less cyclically sensitive in the current cycle included West Virginia, Kentucky, and Wyoming, in each of which accelerated efforts during the 1974–75 recession to increase the energy supply reduced the cyclical sensitivity of mining payrolls. The less sensitive States also included Illinois and Pennsylvania, in both of which durables manufacturing payrolls, particularly in the iron and steel industry, were unusually stable during the early part of the 1974–75 recession.

- Although nonfarm payrolls in New York were relatively insensitive in each of the six postwar business cycles, the growth pattern in the expansion and recession phases of the cycles changed over time. In the current cycle, nonfarm payrolls increased at substantially below-national-average rates in both phases of the cycle; in the five preceding cycles, in contrast, they increased at a somewhat below-average rate in expansions and at an above-average rate in recessions. The change reflects an accelerated decline in manufacturing employment in New York in the 1970's.

- Over the six postwar national business cycles, a narrowing of regional differences in the industrial distribution of nonfarm payrolls did not lead, as might have been expected, to a significant narrowing of regional dif-

ferences in the relative sensitivity of total nonfarm payrolls to national business cycles because from cycle to cycle, within particular industries, regional differences in the relative degree of cyclical sensitivity increased.

● In both the current and the five preceding cycles, unemployment compensation payments partly offset the cyclical sensitivity of nonfarm payrolls in both the North and the South and West, and the offset was relatively larger in the more cyclically sensitive North.

National Business Cycles

During the 103 postwar quarters of business cycle expansion, the mean quarterly percent change (at an annual rate) in nonfarm payrolls in the Nation was 8.5 percent, and during the 21 postwar quarters of recession, the mean quarterly percent change was 1.7 percent. The difference between the two percent changes—6.8 percentage points—is called the "cyclical swing." (See Technical Note.)

All recessions and expansions except the current expansion are dated by peaks and troughs in real GNP.[2] The current expansion is dated from the first quarter of 1975, the real GNP trough, through the fourth quarter of 1979, the most recent quarter for which regional and State income data are available.

Table 1 (column 3) shows the postwar national cyclical swing in nonfarm payrolls by industry. Goods-producing industries—durables manufacturing, construction, nondurables manufacturing, and mining—plus transportation, communication, and public utilities had the largest cyclical swings, and the other services-producing industries—State and

local government, finance, insurance, and real estate, services, wholesale and retail trade, and Federal Government—had the smallest swings. Table 1 (columns 4 and 5) also shows the share of total nonfarm payrolls accounted for by each industry—hereafter called the "weight"—for the beginning and end years of the period. The last column in table 1 shows the swings in total nonfarm payrolls excluding, in turn, the payrolls in each industry. The difference between the all-industry swing and the swing excluding a specified industry reflects the combined effect on the all-industry swing of both the swing and the weight of the specified industry. Consider, for example, the effect on the all-industry swing of durables manufacturing, which had both the largest swing and the largest weight among all industries. The all-industry swing (6.8)—which includes durables manufacturing—was 2.8 percentage points more than the swing excluding durables manufacturing (4.0); this difference indicates that durables manufacturing substantially "intensified" the all-industry swing. Construction and nondurables manufacturing slightly intensified the all-industry swing. The all-industry swing was the same as the swing excluding mining; this equality indicates that mining "maintained" the all-industry swing. In contrast, the all-industry swing was less than the swings excluding each services-producing industry; this difference indicates that each "dampened" the all-industry swing.

The 1948–79 period consists of six national business cycles. In each of the first five (1948:IV–1973:IV), durables manufacturing intensified the all-industry swing, each of the other goods-producing industries maintained it, and each services-producing industry tended to dampen it. In the current cycle (1973:IV–1979:IV), in contrast, both durables and nondurables manufacturing, construction, and transportation, communication, and public utilities intensified the all-industry swing, and nearly all of the other services-producing industries and mining dampened it. This article analyzes the sensitivity of regional and State nonfarm payrolls during the current cycle as well as changes in their sensitivity over the 1948–79 period. Inasmuch as the five preceding cycles were relatively homogeneous, they can be combined. (National swings and weights by industry for the two timespans are shown in charts 1 and 2.)

Cyclical Sensitivity in Regions and States

In both the current and the five preceding cycles, the growth of nonfarm payrolls was substantially less in the North (the Great Lakes, New England, and Mideast regions), which was industrialized earlier and continues to be more industrialized, than in the South and West (the Southeast, Far West, Southwest, Plains, and Rocky Mountain regions), which was industrialized

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2. The peaks and troughs in real GNP are as follows:

Peak	Trough
1948:IV	1949:II
1953:II	1954:II
1957:III	1958:I
1960:I	1960:IV
1969:III	1970:IV
1973:IV	1975:I

Table 1.—Cyclical Swing in Nonfarm Payrolls by Industry, 1948:IV–1979:IV, United States

Rank [3]	Mean quarterly percent change, at annual rate		Cyclical swing	Percent of total nonfarm payrolls [2]		Cyclical swing in total nonfarm payrolls excluding the specified industry
	Expansions	Recessions [1]		1948	1979	
Total nonfarm payrolls	9.5	1.7	6.8	100.0	100.0	....
1 Durables manufacturing	10.3	-7.5	17.8	20.2	17.7	4.0
2 Construction	9.1	1.0	8.0	5.4	4.0	6.7
3 Nondurables manufacturing	7.8	-.4	7.4	15.9	9.8	6.7
4 Mining	7.4	2.5	4.9	1.6	1.6	8.6
5 Transportation, communication, and public utilities	7.4	2.5	4.0	10.4	7.8	6.9
6 Federal Government	7.8	3.2	4.6	6.6	6.2	6.9
7 Wholesale and retail trade	7.6	4.5	3.2	18.3	17.1	7.6
8 Services	9.3	6.6	2.6	9.8	16.8	7.3
9 Finance, insurance, and real estate	8.8	6.4	2.3	3.9	5.5	6.9
10 State and local government	8.6	9.3	-.4	6.7	12.4	7.6

1. Quarterly percent changes for 1957:IV–1958:I are excluded. Inclusion of these changes would distort the results, because the data from 1948:I forward reflect the 1979 national benchmark revisions, and the data prior to 1958:I do not.
2. Columns do not sum to 100 percent because other nonfarm payrolls, which consist of payrolls in agricultural services, forestry, and fisheries, and payrolls of U.S. residents working for international organizations, are not shown separately.
3. Industries ranked by cyclical swing (column 3).

later and continues to be less industrialized. In both timespans, national recessions reduced the growth of nonfarm payrolls more in the North than in the South and West, and national expansions stimulated the growth of nonfarm payrolls less in the North than in the South and West. The resulting cyclical swings were larger in the North than in the South and West (table 2). This regional pattern mainly reflected differential regional responses to the cyclical sensitivity of manufacturing payrolls, which, for the United States, had both the largest weight and one of the largest cyclical swings among all industries in both timespans. In both timespans, manufacturing intensified the all-industry swing more in the North than in the South and West. In the North, manufacturers produce a large share of the Nation's consumer durables, the demand for which declines early and substantially in national business cycles. Production costs in the North stay relatively high over the cycle, because capital stock is relatively old and, thus, expensive to maintain, wage rates tend to be high and "sticky," and State and local taxes are relatively high. Declining revenues and continuing high costs squeeze profit margins, and so northern manufacturers tend to reduce the rate of capacity utilization relatively early in recessions. They tend to maintain low utilization rates until well after expansions have begun and demand has rebounded. In the South and West, in contrast, manufacturers produce a large share of the Nation's high-technology, electronic equipment, the demand for which is less sensitive to national business cycles. Production costs in the South and West stay relatively low over the cycle, because capital stock is relatively new and inexpensive to maintain, and wage rates and State and local taxes are relatively low. If revenues eventually decline, low costs help to moderate the squeeze on profits, and so southern and western manufacturers tend to reduce capacity utilization rates only relatively late in recessions and to increase rates early in expansions.

In addition to manufacturing payrolls, the pattern of regional differences in cyclical sensitivity reflected differential regional effects of the national cyclical sensitivity of government, mining, construction, and private service-type payrolls. Government payrolls dampened the all-industry swing less in the North than in the South and West in both timespans, particularly in the current cycle, when urban fiscal crises in the North limited countercyclical expenditures by State and local governments and military base closings in the North adversely affected Federal payrolls in the 1974–75 recession. In the current cycle, mining payrolls dampened

CHART 1

Cyclical Swing in Nonfarm Payrolls by Industry, 1948:IV-1973:IV, United States

NOTE.—Industries ranked by cyclical swing, 1948:IV-1973:IV. See table 1, note 1.

U.S. Department of Commerce, Bureau of Economic Analysis   80-5-1

CHART 2

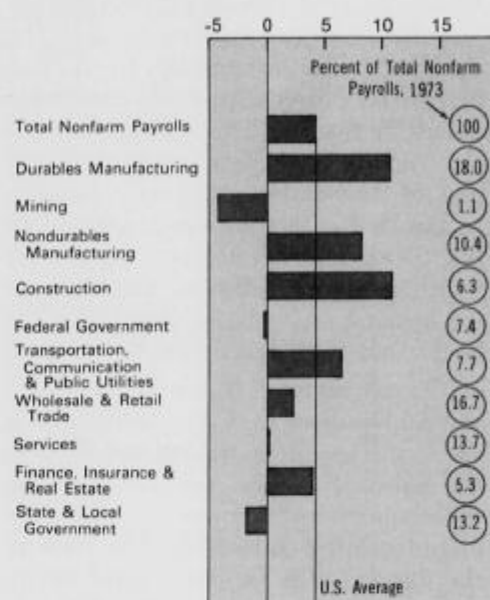**Cyclical Swing in Nonfarm Payrolls by Industry, 1973:IV-1979:IV, United States**

NOTE.—Industries ranked by cyclical swing, 1948:IV-1973:IV. See table 1, note 1.

U.S. Department of Commerce, Bureau of Economic Analysis   80-5-2

Table 2.—Cyclical Swing in Nonfarm Payrolls, 1948:IV-1973:IV and 1973:IV-1979:IV, United States and Regions

Rank [1]		Mean quarterly percent change, at annual rate		Cyclical swing	Mean quarterly percent change, at annual rate		Cyclical swing	Addendum: manufacturing payrolls as a percent of total nonfarm payrolls	
		Expansions	Recessions		Expansion	Recession		1948	1973
		1948:IV-1973:IV			1973:IV-1979:IV				
	United States	8.0	0.2	7.8	10.4	6.2	4.2	36.0	28.4
	North								
1	Great Lakes	8.1	-3.1	11.2	9.9	3.6	6.3	47.6	40.0
2	New England	7.3	.1	7.2	9.6	4.2	5.4	47.0	32.1
3	Mideast	7.0	.4	6.6	7.9	5.1	2.8	38.2	27.2
	Average	7.4	-1.1	8.6	8.9	4.4	4.6	43.0	33.2
	South and West								
1	Southeast	9.2	1.3	8.0	11.3	5.7	5.6	29.3	26.1
2	Far West	8.8	1.4	7.4	11.8	8.5	3.4	24.4	23.3
3	Southwest	8.9	3.3	5.6	13.5	10.8	2.6	17.7	19.2
4	Plains	7.5	2.6	4.9	10.8	8.3	2.5	27.0	26.4
5	Rocky Mountain	8.5	4.2	4.3	13.0	10.0	3.0	16.3	16.3
	Average	8.8	2.0	6.8	11.8	7.8	4.0	25.3	23.9

1. Regions within each group ranked by cyclical swing, 1948:IV-1973:IV (column 3). See table 1, note 1.

the all-industry swing mainly in the South and West, due to accelerated exploration for and production of coal and petroleum and natural gas in the 1974–75 recession. In contrast, in both timespans, construction payrolls intensified the all-industry swing more in the South and West than in the North, and private service-type payrolls dampened it less in the South and West than in the North; these differences were mainly due to decelerations during recessions in the rate of population migration to the South and West from the North, which adversely affected the demand for housing and related services in the South and West relative to the North.[2]

The remainder of this section explains the responses of each of the regions in the North and in the South and West to the national cyclical sensitivity of detailed manufacturing and detailed nonmanufacturing industries. The bulk of the discussion is for the current cycle; important similarities or differences between the current and the five preceding cycles are also noted.

North

Great Lakes.—In both the current and the five preceding cycles, the cyclical swing in nonfarm payrolls was larger than in any other region. The relatively large swing was mainly accounted for by durables manufacturing. In the current cycle, the weight and the cyclical swing in durables payrolls were larger than in any other region, except for the swing in durables in the Southeast (tables 3 and 4). Within durables manufacturing in the Great Lakes region, motor vehicles, fabricated metals, and heavy machinery had large weights (table 5); these were among the Nation's most cyclically sensitive industries. In the 1974–75 recession, production in these industries declined substantially. When motor vehicle production declined, demand for the fabricated metals used to produce them declined. Demand for machinery declined as a consequence. In the current expansion, conversely, demand for these durables, as well as others, increased rapidly. A large swing in construction

payrolls, reflecting the cyclical sensitivity of manufacturers' demand for new structures, also contributed to the region's large all-industry swing in the current cycle.

In both the current and the five preceding cycles, in each Great Lakes State except Illinois, the cyclical swing was above (Michigan, Indiana, and Ohio) or near (Wisconsin) the national average. The cyclical sensitivity of durables manufacturing contributed substantially to the relatively large all-industry swings. In Illinois, the all-industry swing was below the national average in the current cycle and above it in the five preceding cycles. This shift mirrored a change in the relative swing in durables payrolls, and also may have reflected a stabilizing effect on nonfarm payrolls of the increasing role of the Chicago metropolitan area as a supplier of relatively cyclically insensitive services to Great Lakes and other States.

New England.—In both timespans, the cyclical swing in nonfarm payrolls was one of the four largest among the eight regions; the swing was above the national average in the current cycle and somewhat below it in the five preceding cycles. The relatively large swing in the current cycle was mainly accounted for by nondurables manufacturing; both the weight and cyclical swing in nondurables payrolls were above the national average. Within nondurables manufacturing, textiles and paper had large weights in New England, and both were among the most cyclically sensitive industries nationally. Swings in construction and in both Federal and State and local government payrolls, all of which were larger than in any other region, also contributed to New England's large all-industry swing. The large construction swing partly reflected large construction cutbacks in New Hampshire and Vermont in the 1974–75 recession, when a deceleration in population growth rates reduced the demand for housing, and the adverse effects of the Arab oil embargo on the recreation industry reduced the demand for commercial structures. The large swing in Federal payrolls partly reflected military base closings in Rhode Island, which began

shortly before the 1974–75 recession. The large swing in State and local government payrolls indicates that fiscal crises in urban areas dampened government expenditures in the 1974–75 recession. (In most other regions, in contrast, both Federal and State and local government payrolls were countercyclical; that is, growth was faster in the recession than in the expansion, resulting in negative swings.)

In the current cycle, the cyclical swing was above or equal to the national average in each New England State. In the five preceding cycles, in contrast, the swing was below the national average in each State except Connecticut and Vermont. In general, increases over time in the relative swings in Rhode Island, New Hampshire, Massachusetts, and Maine reflected increases in the relative sensitivity of nondurables manufacturing, construction, and government payrolls.

Mideast.—In both timespans, the cyclical swing in nonfarm payrolls was below the national average, reflecting below-average swings in both durables and nondurables manufacturing payrolls and in nearly all private service-type payrolls. In the current cycle, within durables manufacturing, industries that used advanced technology, such as electronic equipment and instruments, had large weights in the Mideast and were among the least cyclically sensitive industries nationally. Within nondurables manufacturing, both apparel and printing and publishing had large weights in the Mideast and small swings nationally. In both durables and nondurables payrolls, the small swings also reflected the cyclical insensitivity of employment in management units of the large numbers of manufacturing corporations that were headquartered in the Mideast, particularly in New York. The small swings in private service-type payrolls reflected the cyclical insensitivity of financial, business, and professional services, many of which were provided to corporations headquartered both in the region and throughout the Nation.

In both timespans in most of the Mideast States, the cyclical swing was

Table 3.—Cyclical Swing in Nonfarm Payrolls by Industry, 1948:IV–1973:IV, and Percent Distribution of Nonfarm Payrolls by Industry, 1948, United States, Regions, and States

	Nonfarm payrolls										
	Total	Durables manufacturing	Mining	Nondurables manufacturing	Construction	Federal Government	Transportation, communication, and public utilities	Wholesale and retail trade	Services	Finance, insurance, and real estate	State and local government
	Cyclical swing [1]										
United States	7.8	20.4	5.6	7.5	7.4	6.1	4.8	3.8	3.6	2.0	0
North											
Great Lakes	11.2	23.0	7.7	7.8	0.0	2.6	6.0	4.4	4.6	.4	−.5
Michigan	14.8	27.4	6.5	7.2	8.4	1.4	7.3	5.8	5.0	.6	−.8
Indiana	13.0	25.4	10.0	7.8	10.0	10.8	7.0	4.5	4.6	1.2	−1.2
Ohio	11.4	22.0	10.0	9.5	7.9	2.0	7.4	4.6	2.7	.6	1.0
Wisconsin	8.0	19.0	9.3	8.4	0.3	2.6	4.4	2.6	3.3	.0	−.4
Illinois	8.5	21.0	6.0	6.9	7.6	2.5	4.3	4.0	4.1	.1	−1.4
New England	7.2	18.0	8.6	10.8	4.0	.5	3.1	1.3	1.8	.2	.4
Connecticut	9.9	29.4	17.7	11.3	3.0	−1.0	1.1	1.7	1.8	−1.2	1.6
Vermont	7.8	21.9	10.4	12.6	−1.7	1.1	4.0	1.4	.6	.8	1.4
Rhode Island	7.4	10.4	−34.8	15.0	0.0	−.2	4.5	1.6	.0	1.5	1.4
New Hampshire	6.8	17.0	−2.3	11.1	−2.0	1.8	3.8	2.6	−1.7	−1.2	1.7
Massachusetts	5.0	15.0	5.7	9.5	7.8	1.8	4.0	.7	2.0	.8	−.0
Maine	5.4	18.0	60.0	0.5	−4.8	−1.0	.6	4.2	.3	−.1	3.2
Mideast	6.0	17.0	16.7	0.8	4.5	5.0	4.7	2.4	2.8	2.0	.6
Pennsylvania	8.7	20.0	17.8	7.4	8.5	5.8	6.6	3.6	1.7	1.4	1.9
Maryland	7.7	16.0	−.4	6.9	11.4	8.1	5.8	4.1	4.7	0.3	.3
Delaware	6.7	23.0	2.4	7.0	1.3	3.4	5.5	3.3	3.8	1.0	.8
New Jersey	8.1	15.4	5.0	7.2	1.7	5.0	2.8	.5	2.8	−1.4	.8
New York	5.0	14.3	11.0	0.4	.9	5.4	4.3	2.2	2.7	2.6	0
District of Columbia	4.2	7.8	−12.7	5.2	6.4	4.0	1.8	3.1	6.6	3.3	−3.7
Average	6.6	20.7	12.5	7.4	6.4	4.6	5.1	3.8	3.3	1.3	.1
South and West											
Southeast	8.0	18.8	11.4	9.6	12.4	8.6	5.2	4.8	4.3	3.1	.3
South Carolina	10.0	19.7	7.8	12.3	20.0	11.5	0.9	5.6	3.7	3.3	1.4
Alabama	10.1	20.0	15.8	11.7	13.9	12.4	4.5	5.0	4.8	1.8	1.3
West Virginia	9.5	19.9	13.2	0.1	−3.6	2.1	6.1	3.6	2.0	2.0	1.1
Kentucky	8.9	22.5	5.9	5.0	10.3	12.8	3.9	3.9	4.1	−.3	.4
North Carolina	7.6	15.4	−3.8	11.6	13.7	5.0	7.5	4.8	2.6	2.4	−.8
Georgia	7.8	20.3	4.0	10.9	16.3	3.8	5.0	5.2	5.2	3.2	1.1
Virginia	7.6	14.0	0.7	8.9	7.0	9.4	3.5	6.3	5.0	4.0	1.4
Tennessee	7.3	17.5	2.8	9.6	0.4	6.0	5.2	4.9	3.2	2.5	2.1
Louisiana	7.2	22.9	4.3	7.4	13.0	10.4	7.2	5.2	3.2	3.6	−3.4
Mississippi	7.0	17.2	4.4	11.3	0.0	0.5	6.7	4.3	2.6	4.3	1.8
Arkansas	6.7	18.5	0.3	9.5	11.4	6.5	3.4	5.2	2.4	4.1	.3
Florida	6.6	16.7	−4.5	3.3	10.0	7.0	4.3	4.3	4.4	4.8	−1.5
Far West	7.4	17.4	6.5	3.6	10.4	8.5	4.3	5.7	4.4	4.1	−.5
California	7.6	18.3	6.5	6.0	10.3	10.1	4.0	5.7	3.8	4.2	−.4
Oregon	7.2	15.0	−12.0	6.6	10.0	1.4	6.1	6.9	6.2	3.7	−3.0
Nevada	9.0	17.8	7.8	12.4	15.3	−1.4	7.2	3.5	10.4	−3.7	−2.3
Washington	6.8	18.2	15.0	3.1	7.7	4.5	4.3	5.9	5.8	4.8	.8
Southwest	5.6	17.8	3.0	4.7	0.7	2.6	4.0	4.5	5.1	2.0	−.5
Arizona	7.2	27.0	1.0	3.2	10.4	6.0	2.3	4.5	4.6	3.4	.2
Texas	5.8	17.8	3.4	4.5	11.0	1.0	4.9	4.3	5.4	3.6	−1.0
New Mexico	5.4	11.2	10.3	0.6	3.0	1.8	3.8	4.5	7.2	1.2	3.3
Oklahoma	4.2	14.2	5.0	4.6	−.6	4.0	3.7	3.0	3.0	1.2	1.3
Plains	4.0	15.0	3.6	5.0	−3.8	3.1	4.1	3.8	2.3	1.3	.0
Minnesota	6.1	15.5	15.4	6.9	3.4	1.2	5.5	3.0	1.8	.3	.4
Missouri	5.8	18.2	1.7	5.8	−4.3	7.0	4.2	3.1	3.2	2.4	.7
Kansas	3.2	20.4	5.1	6.0	−7.6	−.7	4.1	3.5	3.6	.1	1.2
Iowa	4.8	19.5	−4.3	1.6	.3	4.3	2.7	1.8	1.8	3.6	.4
Nebraska	1.6	16.0	−.0	3.1	−10.5	.0	3.7	.9	1.0	−1.1	.1
South Dakota	1.0	8.4	3.8	3.8	−13.1	2.8	2.3	1.0	2.0	1.0	2.0
North Dakota	−2.0	−2.0	3.0	.1	−23.8	2.4	.7	.8	−3.0	0	−.3
Rocky Mountain	4.3	11.6	0.8	4.9	2.6	5.8	3.7	4.2	2.4	2.7	−1.0
Wyoming	0.4	13.7	12.3	1.5	0.8	8.8	5.7	3.1	5.0	−2.7	.4
Utah	4.9	10.9	3.0	1.6	−5.4	8.2	3.3	4.0	1.2	1.1	−.4
Idaho	4.8	17.1	15.0	4.7	−6.4	5.0	4.4	6.1	3.5	3.4	−.4
Colorado	4.4	12.2	9.0	0.3	0.2	4.8	3.4	3.7	2.9	4.4	−2.1
Montana	1.8	10.8	−5.4	−.3	−5.6	1.1	3.1	4.1	−.3	2.1	−.7
Average	6.8	17.3	7.6	7.3	3.6	7.0	4.5	4.6	4.1	2.1	−.1
Alaska	5.2	22.4	16.3	(*)	7.4	1.3	−3.5	4.7	16.4	7.3	16.9
Hawaii	4.5	3.0	−28.0	(*)	8.2	7.2	5.2	4.0	3.6	−.7	−1.4

See footnotes at end of table.

Table 8.—Cyclical Swing in Nonfarm Payrolls by Industry, 1948:IV–1973:IV, and Percent Distribution of Nonfarm Payrolls by Industry, 1948, United States, Regions, and States—Continued

	Total	Durables manufacturing	Mining	Nondurables manufacturing	Construction	Federal Government	Transportation, communication, and public utilities	Wholesale and retail trade	Services	Finance, insurance, and real estate	State and local government
						Percent distribution[2]					
United States	100.0	20.1	2.6	15.9	5.4	6.0	10.4	18.3	9.8	3.9	6.7
North											
Great Lakes	100.0	34.0	1.4	13.6	4.9	3.3	8.1	16.7	8.0	2.1	5.8
Michigan	100.0	42.0	.6	8.3	4.1	2.1	6.3	14.6	7.1	2.3	6.4
Indiana	100.0	36.9	1.7	13.0	5.0	2.8	9.6	13.7	6.8	2.5	5.0
Ohio	100.0	35.2	1.4	14.4	5.2	3.6	8.3	15.6	7.4	2.7	5.2
Wisconsin	100.0	30.8	.3	17.0	4.0	2.0	8.8	16.6	7.4	2.9	7.4
Illinois	100.0	25.4	2.0	15.1	6.1	4.1	10.4	18.9	9.3	4.1	5.5
New England	100.0	24.3	.1	22.7	4.4	4.7	7.1	16.7	9.1	4.1	6.3
Connecticut	100.0	30.0	.1	14.3	4.0	2.5	6.8	14.2	8.7	4.7	5.1
Vermont	100.0	24.2	1.2	16.9	4.6	4.0	10.6	15.0	10.0	3.0	8.4
Rhode Island	100.0	30.4	.0	29.7	3.7	3.5	6.3	14.7	8.2	3.3	5.0
New Hampshire	100.0	13.2	.2	35.4	4.5	0.0	7.5	13.7	9.0	2.7	6.0
Massachusetts	100.0	19.7	.1	21.6	4.4	4.0	7.6	18.6	9.5	4.4	6.7
Maine	100.0	13.6	.1	31.6	6.1	6.5	8.5	16.6	7.8	2.6	7.5
Mideast	100.0	19.0	2.0	18.6	4.8	6.0	10.2	17.6	10.4	4.9	6.0
Pennsylvania	100.0	27.4	6.4	20.6	4.4	4.1	10.4	14.9	7.9	2.1	4.9
Maryland	100.0	17.6	.4	13.7	6.8	16.0	11.3	16.0	9.8	3.5	5.4
Delaware	100.0	11.1	.0	38.9	5.4	2.0	10.7	13.3	6.4	4.2	5.3
New Jersey	100.0	24.5	.4	22.5	5.3	4.0	8.0	15.7	8.0	4.1	5.0
New York	100.0	15.1	.2	19.7	4.2	3.8	10.5	20.1	12.5	6.8	7.8
District of Columbia	100.0	.4	.0	3.3	3.5	48.1	7.3	15.4	13.3	3.5	3.6
Average	100.0	25.9	1.6	17.1	4.7	4.8	8.4	17.1	9.3	4.1	6.5
South and West											
Southeast	100.0	10.5	5.8	18.7	6.6	11.0	10.9	17.4	9.9	3.0	7.0
South Carolina	100.0	5.0	.4	37.2	4.8	13.7	8.4	13.7	9.0	2.2	6.0
Alabama	100.0	16.5	6.0	10.1	4.1	8.3	10.3	13.4	8.7	3.1	7.1
West Virginia	100.0	17.0	31.6	6.2	4.0	2.0	11.4	11.3	6.6	1.7	5.8
Kentucky	100.0	12.6	12.3	13.1	5.0	10.6	12.5	16.0	8.4	2.6	5.8
North Carolina	100.0	6.3	.3	34.0	4.5	8.7	7.4	10.9	8.0	2.6	8.0
Georgia	100.0	8.0	.6	22.9	6.1	10.0	11.2	20.0	10.7	3.8	8.3
Virginia	100.0	8.0	2.0	13.2	6.1	24.0	10.6	15.0	8.4	3.2	5.8
Tennessee	100.0	12.0	2.1	21.0	6.4	8.0	10.0	16.3	10.4	3.6	6.0
Louisiana	100.0	7.3	6.1	16.6	7.2	0.8	14.3	18.4	10.2	3.1	8.4
Mississippi	100.0	12.3	3.1	13.6	5.8	10.9	10.0	10.6	13.1	2.0	10.6
Arkansas	100.0	18.8	4.3	10.2	0.0	9.4	13.0	20.7	10.9	2.0	8.1
Florida	100.0	5.0	.9	6.4	0.4	11.3	12.1	23.7	15.4	4.5	8.6
Far West	100.0	14.4	1.2	10.0	7.6	9.9	10.8	21.2	12.4	3.0	8.2
California	100.0	12.0	1.3	10.3	7.5	10.1	10.5	21.7	13.2	4.1	8.3
Oregon	100.0	20.2	.4	8.0	6.3	4.0	11.0	21.1	9.6	5.0	7.6
Nevada	100.0	4.0	6.0	2.2	0.9	7.1	10.1	17.5	24.8	1.8	8.0
Washington	100.0	17.3	.6	10.0	8.5	12.4	10.2	19.2	9.3	3.6	8.2
Southwest	100.0	7.1	9.1	10.5	7.0	9.6	12.0	21.1	10.0	3.4	7.6
Arizona	100.0	6.4	9.8	4.4	0.2	10.8	13.3	20.0	11.8	3.3	10.6
Texas	100.0	7.7	7.7	11.6	8.0	8.9	13.1	21.5	10.0	3.5	7.1
New Mexico	100.0	2.7	13.9	3.0	2.8	15.4	12.6	16.7	12.5	2.1	10.8
Oklahoma	100.0	6.7	12.0	9.8	0.2	10.3	11.8	20.7	9.6	3.6	8.2
Plains	100.0	11.0	1.8	16.1	5.8	5.6	14.0	23.4	9.8	4.0	8.3
Minnesota	100.0	12.7	2.5	15.3	5.8	3.6	13.6	23.4	9.7	4.2	8.5
Missouri	100.0	14.6	1.0	17.5	5.1	6.4	13.9	23.2	10.0	4.3	5.6
Kansas	100.0	8.6	4.7	13.6	6.4	8.4	17.6	10.0	9.1	2.0	8.8
Iowa	100.0	14.6	.6	16.6	6.4	3.6	12.6	24.0	9.6	3.0	9.4
Nebraska	100.0	5.2	.3	12.9	6.6	7.8	16.3	24.5	10.6	5.0	10.7
South Dakota	100.0	2.3	2.4	6.0	6.0	10.1	11.4	27.8	11.1	3.1	13.0
North Dakota	100.0	1.1	1.2	5.0	8.0	7.9	16.0	31.3	9.9	3.0	13.9
Rocky Mountain	100.0	8.1	7.7	8.2	7.0	10.4	15.7	21.0	9.3	3.0	8.8
Wyoming	100.0	1.8	16.2	7.2	0.7	10.0	20.0	17.8	6.0	2.0	7.7
Utah	100.0	8.7	9.3	7.3	8.7	13.6	14.5	19.8	7.7	2.0	8.0
Idaho	100.0	12.0	6.9	0.7	7.3	0.8	15.2	24.2	8.0	2.7	19.2
Colorado	100.0	7.9	4.6	10.2	6.4	10.8	14.1	22.6	11.2	3.0	8.3
Montana	100.0	8.3	9.7	5.5	7.0	8.1	10.2	21.6	8.5	2.5	9.5
Average	100.0	11.3	4.3	11.0	6.5	9.5	11.9	20.2	10.7	3.5	7.7
Alaska	100.0	7.0	5.0	(*)	10.0	48.6	5.2	8.4	3.7	.0	1.5
Hawaii	100.0	10.7	.3	(*)	6.2	27.5	8.3	15.5	8.5	2.0	9.5

1. See table 1, note 1.
2. See table 1, note 2.
* Included with durables manufacturing.

NOTE.—The 10 major industries are ranked in descending order (columns 2–11) by their cyclical swings in the Nation, 1948:IV–1973:IV. The regions within the two groupings (northern, and southern and western) and the States within each region are ranked in descending order by the cyclical swing in nonfarm payrolls, 1948:IV–1973:IV (column 1).

Table 4.—Cyclical Swing in Nonfarm Payrolls by Industry, 1973:IV–1979:IV, and Percent Distribution of Nonfarm Payrolls by Industry, 1973, United States, Regions, and States

	Nonfarm payrolls										
	Total	Durable manufacturing	Mining	Nondurables manufacturing	Construction	Federal Government	Transportation, communication, and public utilities	Wholesale and retail trade	Services	Finance, insurance, and real estate	State and local government
	Cyclical swing										
United States	4.2	10.9	−4.2	8.1	10.7	−0.3	6.4	2.2	0.3	3.4	−1.3
North											
Great Lakes	6.3	13.7	7.8	6.0	11.5	−1.3	8.0	1.9	−.6	2.3	−.4
Michigan	11.0	23.6	−2.3	10.0	20.5	−1.0	14.6	4.7	2.2	3.1	−.0
Indiana	8.4	14.4	10.4	7.0	10.0	−.2	8.9	2.4	1.8	1.2	4.3
Ohio	5.9	11.6	9.4	7.1	8.2	−3.4	10.6	.5	1.0	4.3	2.1
Wisconsin	4.1	7.6	6.6	5.5	10.0	−.3	9.0	2.2	−2.5	1.3	−.1
Illinois	2.4	5.0	15.2	4.5	7.3	−1.0	5.0	1.0	−3.8	1.4	−1.2
New England	5.4	7.6	9.7	11.7	14.8	5.9	6.0	4.3	.2	2.0	1.0
Connecticut	4.2	5.4	10.5	8.5	13.0	−2.5	9.8	3.0	1.0	0	1.4
Vermont	6.0	9.8	11.4	12.5	12.1	−0.4	6.0	4.8	1.0	5.4	8.2
Rhode Island	6.5	8.5	11.1	12.7	15.0	26.3	8.0	6.0	−2.4	1.8	−5.0
New Hampshire	10.5	16.5	−7.2	20.8	24.5	2.8	0.7	5.9	2.7	5.3	1.8
Massachusetts	5.3	6.2	7.0	12.0	13.1	7.4	5.7	4.4	−.1	2.0	2.0
Maine	5.4	10.0	−8.2	13.3	2.0	1.4	2.4	2.2	1.7	.5	1.2
Mideast	2.8	6.2	.9	7.3	10.5	2.3	6.0	1.0	−1.9	1.2	−1.3
Pennsylvania	2.8	7.8	2.3	8.2	6.4	−4.4	6.2	.2	−1.7	1.0	.1
Maryland	2.1	7.0	−4.4	7.7	6.0	3.3	7.1	−1.3	−2.5	−.5	−1.4
Delaware	6.5	26.3	12.1	−.4	6.7	−5.1	7.8	4.1	6.2	5.4	3.2
New Jersey	4.8	8.8	21.4	5.1	13.9	3.2	7.7	1.7	2.6	1.1	1.9
New York	2.4	7.0	3.9	8.5	15.1	−.2	5.1	2.0	−3.1	1.1	−2.4
District of Columbia	2.7	−13.1	−71.2	−2.6	16.2	0.7	8.8	2.4	−4.0	1.3	0.4
Average	4.5	10.4	4.3	7.6	11.6	1.6	7.2	2.1	−1.2	1.7	−.2
South and West											
Southeast	5.0	16.4	−5.7	12.6	12.4	−1.4	7.4	3.6	2.5	5.0	−3.1
South Carolina	8.7	13.3	2.8	21.3	8.8	−3.1	12.0	4.7	7.1	1.0	−4.3
Alabama	3.9	8.2	−11.4	12.0	−.9	1.3	7.8	1.6	5.6	.0	−1.4
West Virginia	.5	2.6	−1.0	1.8	10.2	−1.7	8.7	−1.1	−.0	6.4	1.7
Kentucky	3.0	14.2	−21.3	8.4	16.0	0	8.5	−2.9	1.4	1.3	−2.1
North Carolina	9.4	23.2	10.5	19.3	12.5	−3.4	10.3	7.4	−.9	4.2	−2.1
Georgia	8.2	21.3	16.0	16.0	17.9	4.4	6.5	5.5	1.2	5.4	−3.7
Virginia	3.2	11.4	−4.3	11.0	7.9	−3.3	8.5	2.6	2.3	7.2	−3.0
Tennessee	6.1	16.1	−22.2	10.0	3.8	.4	8.6	2.8	3.8	2.6	.9
Louisiana	1.0	6.6	−.3	.8	2.2	−1.7	1.3	1.0	.9	−.7	−1.7
Mississippi	5.0	12.7	5.8	11.4	6.2	−1.3	0.2	2.9	3.0	2.9	1.4
Arkansas	5.0	20.4	1.0	0.0	.2	−2.6	8.0	1.4	1.6	2.1	−6.6
Florida	6.2	20.4	1.8	2.1	27.2	−3.1	7.5	6.8	3.3	0.8	−4.4
Far West	3.4	8.0	−.4	8.0	13.4	−1.3	4.6	3.8	2.0	0.0	−4.8
California	3.2	7.7	.7	6.3	12.4	−.3	3.8	1.6	2.8	0.7	−5.6
Oregon	5.8	15.6	6.3	5.7	8.4	−2.9	3.0	3.5	.2	7.1	−3.3
Nevada	8.2	17.2	−16.6	10.3	57.1	4.0	5.0	7.0	1.0	17.2	.3
Washington	1.7	4.0	6.4	.8	8.1	−7.4	6.5	−.3	.9	8.7	−1.5
Southwest	2.0	7.8	−3.5	3.4	8.3	0	4.0	.7	.8	6.5	−1.0
Arizona	0.8	16.5	−1.4	9.0	38.3	−1.1	8.7	7.5	0.3	10.4	−.5
Texas	1.0	4.8	−5.9	3.1	1.3	−.1	4.8	.8	−.7	6.2	−1.0
New Mexico	1.0	8.3	−2.5	1.7	6.1	2.1	0.4	.5	1.0	7.3	−3.0
Oklahoma	1.7	13.4	−.4	3.2	5.6	.1	3.9	−6.5	−.4	4.0	−.1
Plains	2.6	8.9	2.7	3.5	8.5	−2.4	6.0	.8	−.8	2.2	−2.0
Minnesota	2.6	9.3	4.9	4.5	7.0	−.1	0.8	−.5	−2.4	2.6	−1.8
Missouri	5.4	16.0	.3	7.0	17.0	−3.4	5.3	4.8	−.6	3.5	−3.4
Kansas	1.3	1.4	0.4	1.4	5.4	2.8	5.3	−1.0	1.3	3.6	−4.0
Iowa	−.7	3.0	−.6	−1.1	−2.4	−7.4	2.2	−2.1	−.0	.1	−4.2
Nebraska	1.0	10.3	11.4	−1.3	0.0	−4.1	8.9	−.8	−.4	.3	−1.4
South Dakota	.8	15.4	11.9	5.0	−7.3	−1.5	5.0	−.3	−2.0	.7	−1.6
North Dakota	−4.5	−41.4	−.1	−10.3	−20.3	−8.9	5.8	.0	.3	−2.0	2.4
Rocky Mountain	3.0	11.0	−2.8	−1.0	13.4	−1.5	5.3	2.0	−.4	0.0	−3.0
Wyoming	.0	13.9	−7.7	−7.1	−7.5	1.7	−1.3	.0	2.6	4.0	5.9
Utah	2.0	2.7	−.6	−.7	7.4	−1.9	6.0	1.8	−.3	7.8	1.0
Idaho	−1.2	9.2	0	−1.0	−17.6	1.3	6.0	−2.9	1.4	−1.4	−6.6
Colorado	5.2	15.2	−4.3	−2.8	20.7	−1.4	5.7	0.1	−1.4	12.8	−6.7
Montana	.2	0.3	1.3	13.0	−.3	−8.2	5.6	−2.8	1.1	2.4	−3.8
Average	4.0	10.6	−5.3	8.0	11.9	−1.2	6.0	2.3	1.8	6.5	−3.4
Alaska	−36.0	−8.0	−54.0	−3.0	−145.7	−4.6	−69.3	−31.5	−08.6	−13.1	−2.0
Hawaii	−1.0	−3.8	0	−5.0	−8.8	−5.6	4.6	3.5	6.3	−1.8	−3.8

See footnotes at end of table.

Table 4.—Cyclical Swing in Nonfarm Payrolls by Industry, 1973:IV–1979:IV, and Percent Distribution of Nonfarm Payrolls by Industry, 1973, United States, Regions, and States—Continued

	Total	Durables manufacturing	Mining	Nondurables manufacturing	Construction	Federal Government	Transportation, communication, and public utilities	Wholesale and retail trade	Services	Finance, insurance, and real estate	State and local government
					Percent distribution [1]						
United States	100.0	18.0	1.1	19.4	4.3	7.4	7.7	16.7	13.7	5.2	12.2
North											
Great Lakes	100.0	30.0	.6	16.0	5.6	3.3	7.0	15.7	11.5	4.3	11.9
Michigan	100.0	37.1	.4	7.0	5.0	2.5	6.5	14.6	11.3	3.4	13.1
Indiana	100.0	34.2	.5	9.3	5.6	3.4	6.7	14.7	9.1	3.2	10.5
Ohio	100.0	30.5	.7	11.0	5.4	3.8	7.2	15.3	11.4	3.8	10.7
Wisconsin	100.0	26.3	.3	15.7	5.5	2.4	5.4	13.8	11.4	4.1	14.7
Illinois	100.0	22.6	.7	10.0	6.1	3.8	8.3	17.4	12.5	5.6	11.8
New England	100.0	21.1	.1	11.0	6.1	5.2	6.0	16.7	16.6	5.9	12.6
Connecticut	100.0	29.9	.1	8.4	6.2	3.3	5.3	14.8	13.7	6.7	11.5
Vermont	100.0	21.5	.6	7.0	7.2	4.2	6.8	15.3	16.1	4.3	16.0
Rhode Island	100.0	20.5	0	11.0	5.0	10.5	5.2	14.5	13.6	4.3	12.5
New Hampshire	100.0	19.0	.2	15.2	7.1	5.7	5.5	16.1	13.9	4.0	12.3
Massachusetts	100.0	17.5	0	11.0	6.0	4.8	6.5	17.1	17.5	6.0	12.9
Maine	100.0	10.1	.1	19.0	5.9	10.1	5.8	16.0	12.5	4.1	14.0
Mideast	100.0	15.6	.4	11.4	5.6	8.9	7.6	16.0	15.6	6.5	13.8
Pennsylvania	100.0	24.1	1.3	12.9	6.1	4.5	7.6	15.0	13.1	4.5	11.4
Maryland	100.0	11.1	.1	7.1	7.7	17.0	6.1	17.1	14.8	4.7	14.0
Delaware	100.0	10.5	.1	26.9	7.5	5.2	6.4	14.2	12.3	4.5	11.3
New Jersey	100.0	18.9	.2	16.8	5.6	4.6	8.2	16.9	14.0	4.6	12.6
New York	100.0	13.4	.3	10.4	5.1	3.4	8.4	16.7	17.5	8.9	15.7
District of Columbia	100.0	.3	0	2.7	3.7	46.0	5.0	8.1	10.1	4.3	9.2
Average	100.0	22.4	.4	16.8	5.7	6.2	7.3	15.9	13.9	5.5	13.2
South and West											
Southeast	100.0	12.0	1.7	14.1	7.5	10.1	7.7	16.8	12.1	4.0	12.6
South Carolina	100.0	9.7	.3	30.4	7.0	12.1	5.4	13.3	10.1	3.7	11.5
Alabama	100.0	15.6	3.0	14.7	6.2	11.0	7.0	15.2	12.0	4.1	12.9
West Virginia	100.0	16.5	13.0	10.0	7.8	3.0	8.4	14.1	9.4	2.0	12.9
Kentucky	100.0	19.4	4.3	11.8	6.6	9.8	7.8	15.0	10.9	3.6	11.7
North Carolina	100.0	12.9	.2	23.6	6.1	8.3	6.6	15.6	10.3	4.2	11.8
Georgia	100.0	9.7	.4	16.0	6.4	9.8	8.8	16.2	11.9	5.7	11.5
Virginia	100.0	9.6	1.1	16.8	7.0	21.3	7.1	14.6	12.0	4.3	13.0
Tennessee	100.0	16.4	.5	19.0	6.8	6.5	6.0	17.0	12.3	4.0	12.6
Louisiana	100.0	7.8	6.2	16.6	8.2	4.6	10.2	18.0	13.2	4.0	14.1
Mississippi	100.0	18.3	1.1	12.1	6.0	10.6	6.6	14.8	11.5	4.0	14.5
Arkansas	100.0	18.6	.0	13.6	6.0	7.1	9.5	16.8	11.6	4.5	12.2
Florida	100.0	8.0	.4	5.8	11.4	7.6	8.4	20.9	17.3	7.0	13.4
Far West	100.0	16.6	.5	0.7	5.9	6.6	7.6	17.3	16.0	6.3	15.4
California	100.0	16.4	.5	0.0	5.5	6.6	7.7	17.2	16.7	5.5	16.4
Oregon	100.0	21.6	.3	0.7	6.1	5.2	8.6	16.3	11.9	4.6	16.4
Nevada	100.0	3.0	1.7	1.8	10.5	8.3	7.6	14.2	36.0	4.0	12.7
Washington	100.0	17.7	.3	0.7	0.0	10.1	7.9	17.5	12.5	4.8	16.1
Southwest	100.0	11.3	4.3	7.7	7.4	10.0	8.2	18.4	13.0	5.3	13.0
Arizona	100.0	12.9	4.6	3.1	11.7	9.9	6.4	15.7	13.9	5.5	14.9
Texas	100.0	11.8	3.7	9.1	6.9	16.0	8.4	18.3	12.9	5.5	12.2
New Mexico	100.0	4.2	5.0	2.0	7.8	17.7	8.1	16.6	14.3	4.1	18.5
Oklahoma	100.0	11.9	5.8	0.9	5.0	12.3	8.9	17.2	11.8	4.0	13.1
Plains	100.0	15.8	.9	10.0	6.2	6.4	6.3	16.0	12.5	5.1	14.0
Minnesota	100.0	16.0	1.3	11.5	6.4	3.4	6.0	16.0	13.1	6.1	15.3
Missouri	100.0	17.5	.6	11.3	5.5	6.0	0.9	16.6	12.0	5.2	11.2
Kansas	100.0	13.1	1.4	0.8	5.8	5.5	10.0	16.3	11.3	4.5	14.5
Iowa	100.0	20.3	.4	12.0	6.0	3.4	7.7	16.8	11.1	5.0	15.2
Nebraska	100.0	10.2	.3	9.1	7.2	6.1	10.7	16.5	12.4	6.3	15.4
South Dakota	100.0	4.7	1.5	7.0	6.7	12.7	6.3	21.3	13.1	4.4	13.5
North Dakota	100.0	3.5	1.1	3.4	9.0	17.1	0.4	22.5	13.0	4.1	17.0
Rocky Mountain	100.0	10.5	3.5	5.8	9.7	12.3	8.8	16.3	12.5	4.0	14.4
Wyoming	100.0	2.7	18.5	4.0	12.9	11.1	12.0	14.3	8.0	2.0	17.3
Utah	100.0	12.1	4.3	5.0	7.2	14.4	8.6	17.8	11.7	4.3	14.3
Idaho	100.0	13.4	1.7	8.7	7.7	9.4	8.4	19.2	13.4	4.0	14.6
Colorado	100.0	11.0	3.1	6.0	9.2	12.5	8.0	18.4	13.3	5.8	13.3
Montana	100.0	8.0	4.1	4.4	7.8	11.7	11.4	18.9	11.0	3.8	17.6
Average	100.0	11.7	1.7	10.2	6.9	8.3	8.1	17.6	13.5	5.1	13.7
Alaska	100.0	2.6	2.3	4.1	9.4	20.3	8.0	10.7	0.5	2.0	18.9
Hawaii	100.0	1.5	0	4.5	10.4	21.8	8.4	15.5	15.0	5.0	12.7

1. See table 1, note 2.

NOTE.—For ranking of industries and regions and States, see note to table 3.

below the national average, mainly due to the cyclical insensitivity of most manufacturing payrolls. Exceptions were Delaware and New Jersey in the current cycle and Pennsylvania in the five preceding cycles. The increase over time in the relative swing in Delaware was traceable mainly to motor vehicles manufacturing and related private service-type industries, and the increase in New Jersey was traceable mainly to construction. The decline over time in the relative swing in Pennsylvania reflected unusually stable and relatively low rates of iron and steel production in the current cycle. In New York, although nonfarm payrolls were relatively insensitive in each of the postwar business cycles, the growth pattern in the expansion and recession phases of the cycles changed over time. Nonfarm payrolls increased relatively slowly in both phases of the current cycle, after increasing relatively moderately in preceding expansions and relatively rapidly in preceding recessions. The change reflects an accelerated decline in manufacturing employment in the 1970's.

South and West

Southeast.—In both timespans, the cyclical swing in nonfarm payrolls was larger than in any other region except the Great Lakes. In the current cycle, the relatively large swing was mainly accounted for by nondurables and durables manufacturing and construction. The weight and the cyclical swing in nondurables payrolls and the cyclical swing in durables payrolls were larger than in any other region. Within nondurables manufacturing in the Southeast, the cyclically sensitive textile industry had a large weight (as in New England); the sensitivity of textiles partly reflected its use as a production input by the cyclically sensitive construction, motor vehicles, and furniture industries. Within durables manufacturing, the cyclically sensitive heavy machinery and primary and fabricated metals industries had large weights. The large construction swing partly reflected the cyclical sensitivity of the demand for new plant and equipment by manufacturers in the region. The construction swing also reflected large declines in the 1974-75 recession in the demand for housing, particularly in Florida and Georgia, where speculative overbuilding had occurred in the early 1970's. Reflecting the large swings in manufacturing and construction and the adverse effects of the Arab oil embargo on the recreation industry, the swings in each private service-type industry were larger in the Southeast than in the Nation.

In both timespans, the cyclical swing was above or near the national average in South Carolina, North Carolina, and Georgia, mainly because of the cyclical sensitivity of textile manufacturing payrolls. Tennessee, Mississippi, Arkansas, and Florida had above-average swings in the current cycle and below-average swings in the five preceding cycles. Increases over time in the relative swings mainly reflected increases in the relative cyclical swings in manufacturing payrolls (and, in Florida, in construction payrolls as well), as these States became more industrialized. West Virginia, Kentucky, Virginia, and Alabama had below-average swings in the current cycle and above- or near-average swings in the five preceding cycles. Declines over time in the relative swings were, in part, due to declines in the relative cyclical swings in mining payrolls. Mining payrolls in these States were countercyclical in the current cycle; they increased more in the 1974-75 recession than in the current expansion because of large increases in coal production.

Table 5.—Percent Distribution of Manufacturing Payrolls, 1973, United States and Regions

	United States	North	Great Lakes	New England	Mideast	South and West	South-east	Far West	South-west	Plains	Rocky Mountain
	Percent of total nonfarm payrolls										
Manufacturing	23.4	33.2	40.9	32.1	27.3	23.2	25.1	23.3	19.2	26.4	16.3
Durables	13.0	22.4	30.0	21.1	15.9	13.7	12.0	16.5	11.5	15.8	10.5
Nondurables	10.4	12.9	10.0	11.0	11.4	10.2	14.1	6.7	7.7	10.6	5.8
	Percent of manufacturing payrolls										
Manufacturing [1]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Durables	63.3	67.5	75.0	65.0	58.0	57.2	45.9	71.1	60.0	59.9	64.3
Machinery, except electrical	11.5	13.5	10.1	13.1	10.2	9.3	5.8	9.9	12.9	16.7	10.1
Electric and electronic equipment	10.1	10.4	9.9	13.3	10.5	9.7	7.4	13.9	10.3	8.9	9.6
Primary metals	8.6	10.2	11.5	4.1	10.4	4.7	5.1	4.3	5.2	3.6	9.3
Fabricated metal products	7.6	8.7	10.3	9.9	6.6	6.2	5.3	6.3	8.4	8.8	5.0
Motor vehicles	6.6	6.5	16.4	.9	2.0	2.0	1.0	2.5	1.7	5.5	.8
Transportation equip., except motor vehicles	5.3	3.4	2.5	8.7	3.0	8.4	5.2	14.1	9.1	7.2	4.8
Stone, clay, and glass products	3.3	3.3	3.0	2.4	3.0	3.8	4.0	3.2	4.7	3.2	6.0
Lumber and wood products	2.6	.9	.9	1.7	.7	5.0	4.2	8.6	2.6	1.7	10.5
Instruments and related products	2.6	3.3	1.4	5.0	5.2	1.0	1.0	2.0	2.1	2.3	1.7
Furniture and fixtures	2.0	1.5	1.7	1.3	1.4	2.8	4.2	2.1	1.6	1.6	1.3
Miscellaneous	1.8	2.1	1.3	4.0	2.4	1.3	1.2	1.5	1.1	1.7	1.6
Ordnance	1.1	.7	.4	2.2	.6	1.5	.8	3.3	1.2	1.3	6.3
Nondurables	36.7	32.5	25.0	34.4	42.0	42.8	54.1	28.9	40.0	40.1	35.7
Food and kindred products	7.0	6.1	6.6	4.3	6.9	10.3	8.6	9.7	9.3	18.3	10.6
Chemicals and allied products	6.2	6.9	4.4	3.5	5.5	6.5	9.2	3.3	8.7	4.4	2.7
Printing and publishing	5.6	6.9	4.7	5.5	7.7	4.0	3.6	5.2	6.3	8.5	6.4
Apparel and other fabricated textiles	4.2	3.7	1.2	8.2	7.3	4.8	7.2	2.7	6.0	2.0	1.8
Paper and allied products	3.7	3.6	3.1	6.4	5.4	4.1	5.1	1.5	2.1	4.0	1.6
Textile mill products	3.7	1.5	.3	4.6	2.9	6.4	14.8	.6	.7	.4	.2
Petroleum and coal products	1.2	.9	.8	.3	1.3	1.6	.7	1.7	5.0	.7	2.0
Other	6.3	4.7	4.5	7.8	5.7	4.9	5.5	2.5	3.0	4.1	4.4

1. Industries within each group ranked by percent of group total in United States (column 1).

Far West.—In both timespans, the cyclical swing in nonfarm payrolls was below the national average, mainly due to a below-average swing in durables manufacturing payrolls. In the current cycle, within durables manufacturing, aircraft and technologically advanced types of electronic equipment had large weights in the Far West and were among the least cyclically sensitive industries nationally. In the 1974–75 recession, aircraft production in Washington and California increased due to strong demand for both civilian and military aircraft. The production of technologically advanced electronic equipment was well maintained in the recession, because these fast-growing industries were faced with a continuing backlog of orders. A negative swing in State and local government payrolls, which was larger than in any other region, also contributed to the relatively small all-industry swing in the Far West; the negative swing mainly reflected the dampening effects of Proposition 13 on government expenditures in California in the expansion.

In both timespans, the cyclical swing was below the national average in California and Washington, mainly because fluctuations in aircraft production were relatively independent of the national business cycle. Nevada and Oregon had above-average swings in the current cycle and below-average swings in the five preceding cycles. The increase over time in the relative swing in Nevada was mainly due to increases in the relative sensitivity of construction and the related finance, insurance, and real estate industry; in the current cycle, swings in both industries were larger than in any other State, in part because the Arab oil embargo sharply reduced tourist-related construction in the 1974–75 recession. The increase in the relative swing in Oregon was mainly due to an increase in the relative sensitivity of the production of lumber for the construction industry.

Southwest.—In both timespans, the cyclical swing in nonfarm payrolls was below the national average, mainly reflecting below-average swings in both durables and nondurables manufacturing payrolls. In the current cycle, within durables manufacturing, the

cyclically insensitive aircraft and electronic equipment industries had large weights (as in the Far West). Within nondurables manufacturing, the petroleum refining and related petrochemicals industries had large weights in the Southwest and small swings nationally. Mining payrolls, the weight of which was larger in the Southwest than in any other region, were countercyclical because the Arab oil embargo accelerated the rate of petroleum exploration in the 1974–75 recession. A relatively small swing in construction payrolls, partly reflecting the accelerated petroleum exploration, also contributed to the region's small all-industry swing in the current cycle.
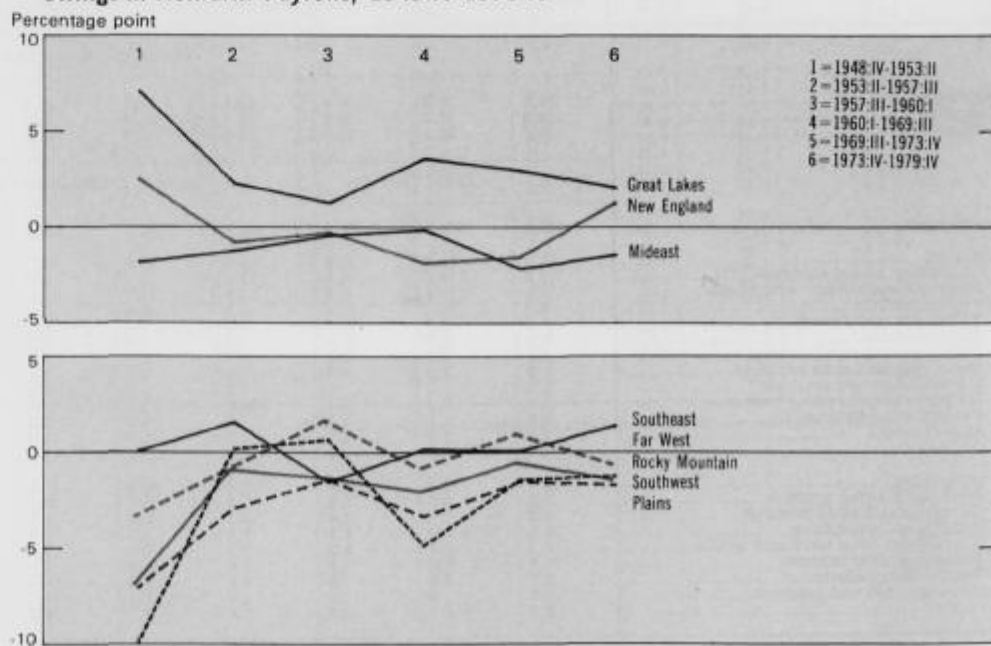
In both timespans, in each Southwest State except Arizona, the cyclical swing was below the national average, mainly because of the relative cyclical insensitivity of petroleum-related manufacturing and mining payrolls. In Arizona, the all-industry swing was above the national average in the current cycle and below it in the five preceding cycles. The relatively large swing in the current cycle was mainly in construction and related private service-type payrolls; the cyclical sensitivity of these payrolls reflected large declines in the demand

for housing and related services in the 1974–75 recession, when the rate of population migration into Arizona decelerated.

Plains.—In both timespans, the cyclical swing in nonfarm payrolls was below the national average, reflecting below-average swings in payrolls in nearly all major industries. In the current cycle, the swings were uniformly small because fluctuations in agricultural production, which substantially affected nonfarm payrolls in the region, were relatively independent of the national business cycle. Within durables manufacturing, farm machinery had a large weight in the region, and within nondurables manufacturing, food processing had a large weight; both were among the least cyclically sensitive industries nationally. The swing in construction payrolls, which was smaller than in any other region, partly reflected stability in the demand for farm buildings. A relatively small swing in each private service-type industry partly reflected strengthening in the demand for services in the 1974–75 recession, when the migration rate of agricultural workers out of the Plains decelerated.

In both timespans, in each Plains State except Missouri, the cyclical swing

CHART 3

Percentage Point Differences Between Actual Regional Swings and U.S. Swings in Nonfarm Payrolls, 1948:IV-1979:IV

1 = 1948:IV-1953:II
2 = 1953:II-1957:III
3 = 1957:III-1960:I
4 = 1960:I-1969:III
5 = 1969:III-1973:IV
6 = 1973:IV-1979:IV

Great Lakes
New England
Mideast

Southeast
Far West
Rocky Mountain
Southwest
Plains

was below the national average due to the cyclical insensitivity of agricultural production. In Missouri, the all-industry swing was above the national average in the current cycle and below it in the five preceding cycles. This increase over time in the relative swing was due to a substantial increase in the weight of the cyclically sensitive motor vehicles industry.

Rocky Mountain.—In both timespans, the cyclical swing in nonfarm payrolls was below the national average, mainly due to below-average swings in nondurables manufacturing, mining, and government payrolls. In the current cycle, within nondurables manufacturing, food processing had a large weight and a small swing, which partly reflected the cyclical insensitivity of the region's agricultural production. Mining payrolls were countercyclical (as in the Southeast and Southwest) because the exploration for and production of petro-

leum and coal accelerated in the 1974–75 recession in response to the Arab oil embargo. In both Federal and State and local government payrolls, the weight was larger and the cyclical swing was smaller in the Rocky Mountain region than in nearly all other regions.

In both timespans, in each Rocky Mountain State except Colorado, the cyclical swing was below the national average. In Colorado, the all-industry swing was above the national average

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CHART 4

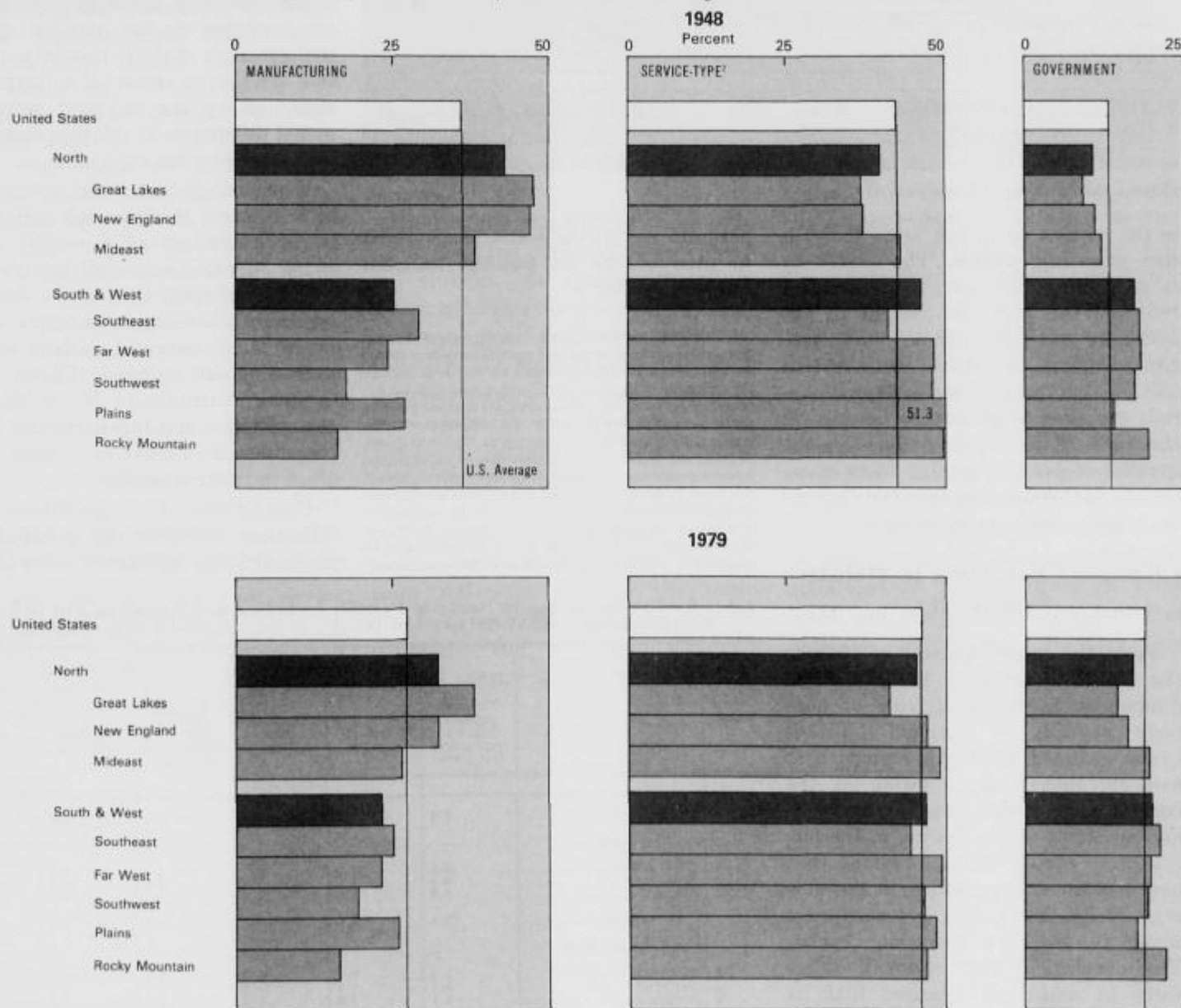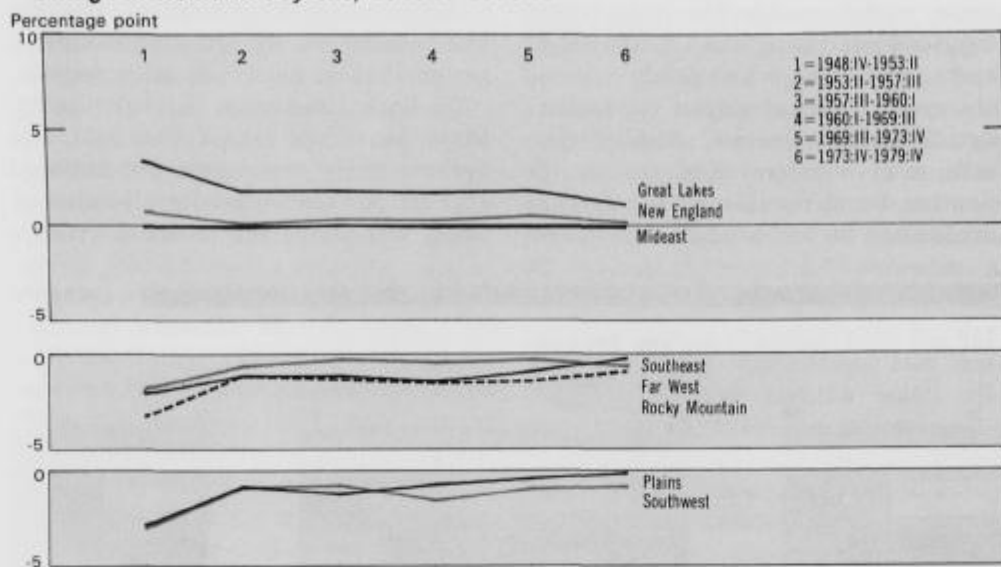## Percent Distribution of Nonfarm Payrolls¹, 1948 and 1979, United States and Regions

1. Excludes mining, construction, and other payrolls.
2. Consists of the transportation-communication-public utilities group, wholesale and retail trade, the finance-insurance-real estate group, and services.

CHART 5

Percentage Point Differences Between Expected Regional Swings and U.S. Swings in Nonfarm Payrolls, 1948:IV-1979:IV

Percentage point

1 = 1948:IV-1953:II
2 = 1953:II-1957:III
3 = 1957:III-1960:I
4 = 1960:I-1969:III
5 = 1969:III-1973:IV
6 = 1973:IV-1979:IV

Great Lakes
New England
Mideast

Southeast
Far West
Rocky Mountain

Plains
Southwest

U.S. Department of Commerce, Bureau of Economic Analysis

80 5 5

in the current cycle and below it in the five preceding cycles. The relatively large swing in the current cycle partly reflected the increased weight of the cyclically sensitive primary and fabricated metals industries. Construction and related private service-type payrolls also had large swings because in the 1974–75 recession, declines in the number of persons moving to or vacationing in Colorado reduced the demand for housing and related services.

Changes Over Time in Relative Sensitivity

From the fourth quarter of 1948 to the fourth quarter of 1979, regional differences in the sensitivity of nonfarm payrolls to national business cycles changed little. All regions that had an above-average swing in the current cycle except New England also had an above-average swing in the five preceding cycles, and all regions that had a below-average swing in the current cycle also had a below-average swing in the five preceding cycles. The conclusion that regional differences in sensitivity changed little is further supported by chart 3, which shows the relative sensitivity of the regions (that is, the percentage-point differences between the regional and

national swings in nonfarm payrolls) to each of the six postwar national business cycles.[4]

4. Percentage-point differences between regional and national swings rather than ratios of regional to national swings are used so that measures of relative regional sensitivity for the current cycle can be compared with measures for the five preceding cycles. In the current cycle, the national swing in nonfarm payrolls was unusually low compared with the typical postwar cycle: In the current cycle, the rate of change in prices was higher in the recession than in the expansion (about 4 percentage points); in the typical postwar cycle, it was lower in the recession. The percentage-point-difference measure of relative sensitivity is unaffected by changes over time in the cyclical behavior of prices. The ratio measure of relative sensitivity, in contrast, is significantly affected by changes over time in the cyclical behavior of prices.

As is well known, regional differences in the industrial distribution of nonfarm payrolls narrowed over the postwar period (chart 4). Given this narrowing, regional differences in relative sensitivity might have been expected to narrow over time. A measure of the expected effect of the narrowing of regional differences in industrial distribution on regional differences in relative sensitivity, hereafter called the expected swing, can be calculated as follows: In each region, for each of the six postwar national business cycles, multiply the weights of each of the 10 industries for which quarterly nonfarm payroll data are available by the national cyclical swing in each of the industries and then sum the results across all industries. As measured by the expected swing, regional differences in relative sensitivity narrowed over time (chart 5).

When swings are viewed as they were in calculating the expected swing, that is, as a product of a weight and a swing summed across all industries, it can be inferred that a widening of regional differences in industry swings must have occurred, offsetting the narrowing of regional differences in industry distributions. In combination, this widening and this narrowing led to the observed stability of regional differences in relative sensitivity.

Comparisons of the percentage-point difference between the regional and national swing in each industry in each

Table 6.—Cyclical Swing in Nonfarm Payrolls Including and Excluding Unemployment Compensation, 1948:IV-1973:IV and 1973:IV-1979:IV, United States and Regions

Rank [1]		1948:IV-1973:IV			1973:IV-1979:IV		
		Nonfarm payrolls plus unemployment compensation	Nonfarm payrolls	Percentage-point difference	Nonfarm payrolls plus unemployment compensation	Nonfarm payrolls	Percentage-point difference
	United States	7.0	7.8	−0.8	3.0	4.2	−1.2
	North						
1	Great Lakes	10.2	11.2	−1.0	4.9	6.3	−1.4
2	New England	6.0	7.2	−1.2	3.3	5.4	−2.1
3	Mideast	5.8	6.6	−.8	1.5	2.8	−1.3
	Average	7.6	8.6	−1.0	3.2	4.6	−1.4
	South and West						
1	Southeast	7.4	8.0	−.6	4.2	5.6	−1.4
2	Far West	6.6	7.4	−.8	2.2	3.4	−1.2
3	Southwest	5.4	5.6	−.2	2.1	2.6	−.5
4	Plains	4.5	4.9	−.4	1.9	2.5	−.6
5	Rocky Mountain	4.0	4.3	−.3	2.5	3.0	−.5
	Average	6.3	6.8	−.5	3.0	4.0	−1.0

1. Regions within each group ranked by cyclical swing in nonfarm payrolls, 1948:IV-1973:IV (column 2). See table 1, note 1.

region show that in more than 60 percent of the cases, the percentage-point difference was larger in the current than in the five preceding cycles. The widening of regional differences in industry swings was mainly accounted for by nondurables manufacturing; State and local government; transportation, communication, and public utilities; durables manufacturing; mining; and finance, insurance, and real estate.

Effects of Unemployment Compensation

In both the current and the five preceding cycles, in each of the eight regions, unemployment compensation increased more rapidly in recessions than expansions, thereby partly offsetting the cyclical swings in nonfarm payrolls. That is, the addition of unemployment compensation to nonfarm payrolls and the calculation of cyclical swings for the resulting totals yielded swings that were smaller than those for nonfarm payrolls alone (table 6). In each region, the percentage-point offsets to the cyclical swing due to unemployment compensation were larger in the current than in the five preceding cycles.

In both timespans, the percentage-point offsets were larger in each region in the North than in each region in the South and West, except in the Far West in the five preceding cycles and in the Southeast in the current cycle.[5] In the

5. In the Great Lakes region, the offsets were understated because unemployment compensation, as measured in personal income, does not include the often substantial amounts of payments from private unemployment insurance funds, such as the supplemental income fund in the automobile industry.

current cycle, 19 of the 22 States in which the offsets equaled or exceeded the national average (−1.2 percentage points) were in the regions of the North and Southeast, which are relatively cyclically sensitive.

Technical Note

The cyclical swing approach to measuring cyclical changes can best be understood by comparing it with the "cyclical amplitude" approach, which is traditional. Briefly, the traditional approach typically involves: (1) applying statistical techniques to time series in order to separate cyclical developments from trend, seasonal, and random developments, and (2) identifying cyclical peaks and troughs and measuring the changes, or cyclical amplitudes, between the peaks and troughs.

Unlike the traditional approach, which measures changes between peaks and troughs, the cyclical swing approach measures changes over the whole business cycle. Like the traditional approach, the cyclical swing approach separates cyclical developments from trend, seasonal, and random developments. A definition of the cyclical swing that is equivalent to the one in the text shows how trend is eliminated. The definition is as follows: the difference between (1) the percentage-point difference between the mean quarterly percent change in the expansion(s) and the mean quarterly percent change in the whole cycle(s)

and (2) the percentage-point difference between the mean quarterly percent change in the recession(s) and the mean quarterly percent change in the whole cycle(s). The cyclical swing eliminates trend because, when trend is viewed as the mean quarterly percent change in the whole cycle, the swing is equivalent to the difference between two mean deviations from trend. Seasonal developments are eliminated by the use of seasonally adjusted data. Random developments are handled by the use of mean changes during complete expansions and recessions to calculate the swing; this calculation "averages out" quarterly percent changes that are randomly high or low.

If, as in this article, the purpose is to measure and explain the sensitivity of regions and States to national business cycles, the cyclical swing approach has an important advantage over the traditional approach. In the cyclical swing approach, regional and State cyclical swings can easily be compared with national cyclical swings because the national swing is a weighted average of regional or State swings. In the traditional approach, in contrast, it is difficult to compare regional and State cyclical amplitudes with national cyclical amplitudes because the derivation of regional and State amplitudes tends to involve complex mathematical formulations of trend, which, in most cases, are computed independently of national trends and, therefore, are nonadditive.